

### REMARKS

In the Office Action dated June 26, 2006, claims 29 and 30 was rejected under 35 U.S.C. § 112, ¶ 1; claims 1, and 3-8 were rejected under § 103 over U.S. Patent No. 5,686,349 (Nakata '349) alone.

Applicant acknowledges the allowance of claims 10, 12-14, 17, 18, 28, and 31. Applicant also acknowledges the indication that claims 26 and 27 would be allowable if rewritten in independent form.

Claim 26 has been amended into independent form to place it in condition for allowance.

### REJECTION UNDER 35 U.S.C. § 112, ¶ 1

Claim 29 has been amended to address the § 112, ¶ 1 rejection. Therefore, claims 29 and 30 are now in condition for allowance.

### REJECTION UNDER 35 U.S.C. § 103

As amended, it is respectfully submitted that claim 1 is not obvious over Nakata '349. Claim 1 now recites that, during the first process, an electric field is applied to break down  $\text{SiH}_4$  to  $\text{SiH}_2$ . Moreover, claim 1 recites that during the second process, a portion of the microcrystalline thin film is deposited, where depositing the portion includes adsorbing the  $\text{SiH}_2$  to a surface of the substrate to form microcrystals, and where the portion of the microcrystalline thin film is formed *without converting amorphous silicon to the microcrystals*. Note that this amendment made to claim 1 is supported by at least the following passages of the Specification: ¶¶ [033], [039], [040], [08].

In the Example 1 embodiment of Nakata '349, deposition of an *amorphous* silicon layer on the substrate occurs during the first time period in which the material gas ( $\text{SiH}_4$ ) and hydrogen gas are introduced. Nakata '349, 5:45-58. On the other hand, during the period in which only the hydrogen gas is introduced, the *amorphous* silicon layer that *has been deposited* on the substrate 10 is subjected to a hydrogen plasma treatment to *convert* the deposited amorphous silicon layer into a microcrystalline layer. Nakata '349, 5:58-61; 6:26-28; 7:18-20.

Therefore, Nakata '349 does not teach or suggest the subject matter of claim 1.

Appln. Serial No. 10/693,244  
Amendment Dated March 5, 2007  
Reply to Office Action Mailed December 6, 2006

Dependent claims are allowable for at least the same reasons as corresponding independent claims.

In view of the foregoing, allowance of all claims is respectfully requested. The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 20-1504 (CMO.0012US).

Respectfully submitted,

Date: \_\_\_\_\_

*Mar 5, 2007*



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